

Omnia Plastica PEEK Polyetheretherketone

Category : Polymer , Thermoplastic , Polyketone , Polyetheretherketone (PEEK) , Polyetheretherketone, PEEK, Unreinforced

Material Notes:

Semicrystalline polymer. Material with high mechanical and thermal properties, up to 240°C. It resists to creep under load and to wear, its friction coefficient is low. The temperature resistance without load is high but it is reduced by the addition of load even if limited. Features: High temperature. It resists beyond 240°C. (The Heat distortion temperature is 162°C) Dimensional stability Good chemical resistance Good abrasion resistance and low friction coefficient. Electrically insulation Weak Point: Very high cost. Load bearing decreases above 140° C. Not inherently U.V. stable. Application: Mechanical: The dimensional stability at temperature is high, as well as the heat resistance. The components obtained have a high wear resistance and are self-lubricated. It is used to high performance pieces at low as well as at high temperatures: gears bushes, in aircraft and aerospace industries. Electrical: Very good dielectric and insulating properties. Chemical: Very good chemical resistance. Ball valve seals, pump housings Nuclear: High resistance to gamma radiation Information provided by Omnia Plastica s.p.a. for semfinished products such as sheet, rod, and tube.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Omnia-Plastica-PEEK-Polyetheretherketone.php

Physical Properties	Metric	English	Comments
Density	1.32 g/cc	0.0477 lb/in ³	ISO.1183 DIN.53479
Moisture Absorption at Equilibrium	0.10 %	0.10 %	50% relative humidity
Water Absorption at Saturation	0.50 %	0.50 %	23°C

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	109	109	dry sample; ISO2039.2
Tensile Strength at Break	92.0 MPa	13300 psi	ISO.527 DIN.53455
Elongation at Break	50 %	50 %	ISO.527 DIN.53455
Tensile Modulus	3.60 GPa	522 ksi	ISO.527 DIN.53455
Charpy Impact Unnotched	NB	NB	7.5 J; ISO.R179 DIN.53453
Charpy Impact, Notched	8.00 J/cm ²	38.1 ft-lb/in ²	ISO179/3C DIN.53453

Thermal Properties	Metric	English	Comments
CTE, linear	47.0 μm/m-°C	26.1 μin/in-°F	
	@Temperature 23.0 - 60.0 °C	@Temperature 73.4 - 140 °F	
Thermal Conductivity	0.250 W/m-K	1.74 BTU-in/hr-ft ² -°F	DIN.52612
Melting Point	334 °C	633 °F	

Thermal Properties	Metric	English	Comments
Maximum Service Temperature, Air			Maximum operating temperature continuously for 5000 hours based on a tensile stress of 50% at 23° C.
	300 °C	572 °F	short period, no load
Deflection Temperature at 1.8 MPa (264 psi)	160 °C	320 °F	ISO.75 DIN.53461
Minimum Service Temperature, Air	-50.0 °C	-58.0 °F	impact conditions and heavy loads not considered
Flammability, UL94	V-0	V-0	
Oxygen Index	49 %	49 %	ISO.4589

Electrical Properties	Metric	English	Comments
Volume Resistivity	4.10e+10 ohm-cm	4.10e+10 ohm-cm	ISO.93 DIN.53482
Dielectric Constant	3.3	3.3	ISO.250 DIN.53483
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Strength	20.0 kV/mm	508 kV/in	ISO.243 DIN.53481
Dissipation Factor	0.0020	0.0020	ISO.250 DIN.53483
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	

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